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NOTICE OF ALLOWANCE AND FEE(S) DUE

23720 7590 12/12/2008

WILLIAMS, MORGAN & AMERSON
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

EXAMINER

EL. SHAMMAA, MARY A

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 12/12/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,596

11/28/2006

Terry Victor Clapp

2143.000400/KDG

4092

TITLE OF INVENTION: METHOD AND APPARATUS FOR TRANSFORMING OPTICAL WAVE MODES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/12/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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Alexandria, Virginia 22313-1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23720 7590 12/12/2008

WILLIAMS, MORGAN & AMERSON
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,596 11/28/2006 Terry Victor Clapp 2143.000400/KDG 4092

TITLE OF INVENTION: METHOD AND APPARATUS FOR TRANSFORMING OPTICAL WAVE MODES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 03/12/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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EL SHAMMAA, MARY A 2883 385-129000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,596	11/28/2006	Terry Victor Clapp	2143.000400/KDG	4092
23720	7590	12/12/2008	EXAMINER	
WILLIAMS, MORGAN & AMERSON 10333 RICHMOND, SUITE 1100 HOUSTON, TX 77042			EL SHAMMAA, MARY A	
			ART UNIT	PAPER NUMBER
			2883	
DATE MAILED: 12/12/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 114 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 114 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/576,596	CLAPP, TERRY VICTOR	
	Examiner	Art Unit	
	MARY A. EL SHAMMAA	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed 11/17/08.
2. ☒ The allowed claim(s) is/are 1-4,6-15,17-27,29-34,36-40,42 and 43.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>11/08</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|--|--|

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mark Sincell on September 26, 2008.

The application has been amended as follows:

Claim 1 has been amended to read as:

A strip loaded waveguide apparatus, comprising:

a substrate;

a first layer of waveguiding material above the substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

a second layer of waveguiding material adjacent the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension, wherein the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer are arranged to perform an optical mode transformation of light input into the apparatus, wherein the second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Art Unit: 2883

Claim 5 has been cancelled.

Claim 6 has been amended to depend from claim 1.

Claim 7 has been amended to depend from claim 1.

Claim 13 has been amended to read as:

An apparatus, comprising:

a substrate;

a first layer of waveguiding material above the substrate, the first layer having a first index of refraction;

a second layer of waveguiding material above the first layer, the second layer having a second index of refraction; and

an active element above a portion of the second layer, the active element having a third index of refraction selected such that a portion of the selected electromagnetic mode propagates in the active element, wherein the first index of refraction, the second index of refraction, the third index of refraction and the arrangement of the first and second layers and the active element are selected such that the apparatus performs an optical mode transformation of light input into the apparatus, wherein the first layer of waveguiding material has a first horizontal dimension and a first vertical dimension, wherein the second layer of waveguiding material has a second horizontal dimension and a second vertical dimension, and wherein the second vertical dimension is smaller than the first vertical dimension and the second horizontal dimension is smaller than the first horizontal dimension.

Claim 16 has been cancelled.

Claim 17 has been amended to depend from claim 13.

Art Unit: 2883

Claim 26 has been amended to read as:

A method, comprising:

forming a first layer of waveguiding material above a substrate such that the first layer has a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

forming a second layer of waveguiding material above the first layer such that the second layer has a second index of refraction, a second horizontal dimension, and a second vertical dimension, wherein forming the first and second layers comprises selecting the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer so that the first and second layers of waveguiding material perform an optical mode transformation of input light, wherein forming the second layer comprises forming the second layer such that second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Claim 28 has been cancelled.

Claim 33 has been amended to read as:

A method, comprising:

forming a first layer of waveguiding material above a substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension;

forming a second layer of waveguiding material above the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension, the second vertical dimension being smaller than the first vertical dimension, the

Art Unit: 2883

second horizontal dimension being smaller than the first horizontal dimension, and the second index of refraction being larger than the first index of refraction such that a selected electromagnetic mode propagates in a portion of the first layer approximately defined by the second horizontal dimension and the first vertical dimension;

forming an active element above a portion of the second layer, the active element having a third index of refraction such that a portion of the selected electromagnetic mode propagates in the active element; and

inputting light in an initial electromagnetic mode into a strip loaded waveguide formed by the first layer, the second layer and the active element and transforming the input light into the selected electromagnetic mode, wherein forming the active element comprises forming the active elements having the third index of refraction that is larger than the first and second indices of refraction.

Claim 35 has been cancelled.

Claim 39 has been amended to read as:

A system for transforming optical wave modes,
comprising:

an optical wave mode transformer optically coupled to a light source that is configured to emit light in an initial electromagnetic mode, the optical wave mode transformer comprising:

a first layer of waveguiding material above a substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

a second layer of waveguiding material above the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension; and

Art Unit: 2883

an optical element that is optically coupled to the optical wave mode transformer to receive a selected electromagnetic mode, wherein the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer are arranged to perform an optical mode transformation of the light input into the strip optical mode wave transformer from the light source so that the selected electromagnetic mode differs from the initial electromagnetic mode, wherein the second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Claim 41 has been cancelled.

Claim 42 has been amended to depend from claim 39.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the prior art of record fails to teach or fairly suggest the limitations of the claims, as currently amended.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2883

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. EL SHAMMAA whose telephone number is (571)272-2469. The examiner can normally be reached on M-F (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mary A. El-Shammaa/
Patent Examiner, Art Unit 2883

/Frank G Font/
Supervisory Patent Examiner, Art Unit 2883

November 21, 2008